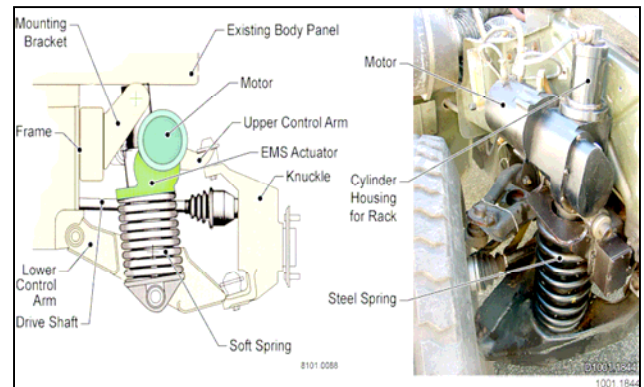


Electronically Controlled Active Suspension System (ECASS)

Purpose: To develop an Electronically Controlled Active Suspension Systems (ECASS) that could greatly increase the operational performance of the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) in terms of improved combat effectiveness and combat suitability.

Background: The increased tempo of the modern battlefield has increased the demands upon wheeled vehicles to operate at greater speeds, with greater payloads, and with greater safety. Increased vehicle speeds over all types of road conditions enable combat forces to rapidly maneuver against enemy forces, thus maintaining the initiative on the battlefield. Current passive suspension shock loads are partially absorbed and isolated by the suspension system with the remaining shock load absorbed by the contents of the vehicle (passengers and equipment). The University of Texas – Center for Electro Magnetics (UT-CEM) has pioneered electro-magnetic (EM) active suspension technology that more efficiently isolates shock loads induced into a vehicle.



Description: ECASS is a coordinated MCWL and ONR initiative to use the active suspension technology developed by UT-CEM. It will provide the USMC with the capability to increase the payload of HMMWVs, increase fuel efficiency, provide a ride height adjustment feature, and improve off road mobility. ECASS will effectively stabilize the vehicle chassis when the vehicle is traveling at speeds over all types of terrain, thereby significantly improving the ride quality of the vehicle for the driver, passengers, and equipment. It continually responds to sensors and adjusts the forces on each corner of the vehicle to optimize ride under all operational conditions. This is accomplished by replacing passive shock absorbers with fully controllable actuators at each wheel. An electronic control unit controls the system. An integrated ride height adjustment system compensates for increasing payload by adjusting nominal ride height. Based on UT-CEM's proof-of-principle results, the ECASS is projected to increase the load carrying capacity of an up-armored HMMWV, ride limiting speed, simultaneously improve ride quality, and reduce off-road fuel consumption when compared to a passive suspension HMMWV. Phase II of this initiative will culminate in a decision to either transition ECASS to a Marine Corps Systems Command Program of Record, or to a Phase III for further development and evaluation. ECASS will be installed on up-armored HMMWVs and ready for production and installation on new or existing HMMWVs within 18 months of project completion.

Deliverable Products: The deliverable is a working ECASS installed on an armored HMMWVA2.

Milestones:

TASK	FY06	FY07	FY08
Prototype Build – Test-Fix-Test	▲		
Gov't test/demo	▲	▲	
Phase II for pre-production TRL		▲	▲

POC: (703) 784-5178